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EXAMINER	
SOBUTKA, PHILIP	

ART UNIT	PAPER NUMBER
2684	

DATE MAILED: 01/18/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/087,368	SHAHIDI ET AL.	
	Examiner	Art Unit	
	Philip J. Sobutka	2684	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *14 September 2004*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-43,52 and 53* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-43,52 and 53* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1-8,19-27,36,37, are rejected under 35 U.S.C. 102(b) as being anticipated by Salonaho (WO 99/52310).

Consider claim 36. Salonaho teaches a method for controlling a common reference power used by a plurality of base stations during a soft handoff to vary step size of forward link transmit power adjustments (Salonaho figs 2,6), said method comprising: receiving power measurement reports from a mobile station in soft handoff (Salonaho fig 4, page 3, lines 14-16, page 5, lines 16-23, page 6, lines 5-10); and adjusting the common reference power responsive to the power measurement reports from the mobile station (Salonaho fig 4, page 3, lines 14-16,page 5, lines 6-23, page 6, lines 10-15).

As to claim 37, note that Salonaho teaches the method wherein adjusting the common reference power comprises increasing the common reference power responsive to the receipt of a power measurement report from the mobile station (Salonaho fig 6, page 7, lines 31-37, page 8, lines 5-34).

Regarding claims 1,19, 2 and 20, Salonaho teaches all the limitations recited as shown above. Salonaho further teaches varying a step size of the power adjustments as

a function of the current transmit powers and a common reference power comprises varying the step size of the power adjustment at each base station based on a difference between the current transmit power of the base station and the common reference power (Figures 5,6 and page 5, line 32 – page 6, line 4,page 6, line 15 – page 7, line 4, page 7, lines 32-36, and page 8, lines 16 -34).

Regarding claim 3, Salonaho teaches all the claimed limitations recited in claim 2. Salonaho further teaches wherein varying the step size of the power adjustment at each base station based on a difference between the current transmit power of the base station and the common reference power comprises increasing the step size if the power control commands from the mobile station move the transmit power of the base station toward the common reference power; and decreasing the step size if the power control commands from the mobile station move the transmit power of the base station away from the common reference power (Figure 6 and page 8,lines 16 -34).

Regarding claims 4 and 23, Salonaho teaches all the claimed limitations as recited in claims 3 and 22. Salonaho further teaches of wherein increasing the step size comprises changing the transmit power by an adjustment term formed as a sum of a fixed adjustment term and a variable adjustment term (Figure 6 page 7, lines 31 -37, page 8,.lines 5 -13 and page 8,lines 16 -34).

Regarding claims 5 and 24, Salonaho teaches all the claimed limitations as recited in claims 3 and 23. Salonaho further teaches of wherein decreasing the step size comprises changing the transmit power by an adjustment term formed as a

difference of a fixed adjustment term and a variable adjustment term (Figure 6, page 7, lines 31 -37, page 8, lines 5 -13 and page 8,1ines 16 -34).

Regarding claim 6, Salonaho teaches all the claimed limitations as recited in claim 2. Salonaho further teaches wherein varying the step size of the power adjustment at each base station based on a difference between the current transmit power of the base station and the common reference power comprises calculating the step size based on a fixed adjustment term dependent on the power control commands from the mobile station and a variable adjustment term proportional to the difference between the current transmit power of the base station and the common reference power (Figure 6, page 7, lines 31 -37, page 8, lines 5 -13 and page 8,lines 16 -34).

Regarding claim 7, Salonaho teaches all the claimed limitations as recited in claim 6. Salonaho further teaches wherein calculating the step size comprises: selecting one of a fixed upward adjustment value and a fixed downward adjustment value as the fixed adjustment term based on the power control commands from the mobile station (Figure 6 and page 8, lines 16 - 34); and calculating the variable adjustment term by subtracting the common reference power from the current transmit power of the base station (Figure 6, page 7, lines 31 -37, page 8, lines 5 -13 and page 8,1ines I 6 -34).

Regarding claim 8, Salonaho teaches all the claimed limitations as recited in claim 7. Salonaho further teaches wherein calculating the step size further comprises combining the fixed adjustment term with the variable adjustment term. (Figure 6 and starting page 7,1ine 22 and ending page 8, line 15).

Regarding claim 21, Salonaho teaches all the claimed limitations as recited in claim 20. Salonaho further teaches wherein the at least one processor in each base station increases the step size of the power adjustment if the power control command from the mobile station would move the transmit power toward the common reference power (Figure 6, page 7, lines 31 -37, page 8, lines 5 -13 and page 8,lines I 6 -34).

Regarding claim 22, Salonaho teaches all the claimed limitations as recited in claim 21. Salonaho further teaches of wherein the at least one processor in each base station decrees the step size if the power control command from the mobile station would move the transmit power away from the common reference power (Figure 6, page 7, lines 31 -37, page 8, lines 5 -13 and page 8,lines 16 -34).

Regarding claim 25, Salonaho teaches all the claimed limitations as recited in claim 24. Salonaho further teaches of wherein the at least one processor in each base station selects one of a fixed upward adjustment value and a fixed downward adjustment value as the fixed adjustment term based on the power control command from the mobile station (Figure 6, page 7, lines 31 - 37, page 8, lines 5 -13 and page 8,lines 16 -34).

Regarding claim 26, Salonaho teaches all the claimed limitations as recited in claim 24. Salonaho further teaches of wherein the at least one processor in each base station calculates the variable adjustment term as the difference between the common reference power and the current transmit power (Figure 6, page 7, lines 31 -37, page 8, lines 5 -13 and page 8,lines 16 -34).

Regarding claim 27, Salonaho teaches all the claimed limitations as recited in claim 26. Salonaho further teaches of wherein the at least one processor in each base station calculates the difference between the common reference power and the current transmit power by subtracting the common reference power from the current transmit power (Figure 6, page 7, lines 31 -37, page 8, lines 5 - 34).

Claim Rejections - 35 USC § 103

3. Claims 9, 10, and 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over 8. Salonaho (WO 99/52310) as applied to claims 7 and 27 above, and further in view of Hambe et al. (US 6,351,651).

Regarding claim 9, Salonaho teaches all the claimed limitations as recited in claim 7. Salonaho does not teach calculating the variable adjustment term by subtracting the common reference power from the current transmit power of the base station further comprises multiplying the variable adjustment term by a convergence coefficient. In a related art dealing with power control, Hambe teaches calculating a variable adjustment term by subtracting the common reference power from the current transmit power of the base station further comprises multiplying the variable adjustment term by a convergence coefficient (column 7, line 55 - column 8, line 2). It would have been obvious to one skilled in the art at the time of invention to include into Salonaho's power control system, Hambe's coefficient, for the purposes of accurately controlling power to obtain higher capacity on both links, as taught by Hambe.

Regarding claim 10, Salonaho in view of Hambe teach all the claimed limitations as recited in claim 9. Hambe further teaches of further comprising setting a magnitude

of the convergence coefficient to set a sensitivity of the power adjustment to the difference between the current transmit power of the base station and the common reference power (column 8, lines 3 - 13).

Regarding claim 28, Salonaho teaches all the claimed limitations as recited in claim 27. Salonaho does not specifically teach of wherein the at least one processor in each base station further calculates the variable adjustment term based on scaling the variable adjustment term by a convergence coefficient to set a sensitivity of step size adjustment to the difference between the common reference power and the current transmit power. In a related art dealing with power control, Hambe teaches of wherein the at least one processor in each base station further calculates the variable adjustment term based on scaling the variable adjustment term by a convergence coefficient to set a sensitivity of step size adjustment to the difference between the common reference power and the current transmit power (starting column 7, line 55 and ending column 8, line 2 and column 8, lines 3 -13). It would have been obvious to one skilled in the art at the time of invention to include into Salonaho's power control system, Hambe's coefficient, for the purposes of accurately controlling power to obtain higher capacity on both links, as taught by Hambe.

4. Claims 11-16, 29 -32, and 34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Salonaho (WO 99/52310) as applied above, and further in view of Chen (Chen, US Patent No, 5,893,035).

Regarding claim 11, Salonaho teaches all the claimed limitations as recited in claim 1. Salonaho does not specifically teach of wherein adjusting the common

reference power based on the power measurement reports comprises adjusting the common reference power responsive to reported frame errors at the mobile station as indicated by the power measurement reports. In a related art dealing with power control, Chen teaches wherein adjusting the common reference power based on the power measurement reports comprises adjusting the common reference power responsive to reported frame errors at the mobile station as indicated by the power measurement reports (column 2,1ines 50-63). It would have been obvious to one skilled in the art at the time of invention to have included into Salonaho's power control system, Chen's error reporting techniques, for the purpose of reducing delay while retaining a measure of quality of communication, as taught by Chen.

Regarding claim 12, Salonaho in view of Chen teach all the claimed limitations as recited in claim 11. Chen further teaches of wherein adjusting the common reference power based on reported game errors at the mobile station further comprises: receiving an error report from the mobile station at a base station controller communicatively coupled to the base stations (column 2, line 61 - column 3, line 5); and signaling the base stations such that the common reference power is adjusted upward by a predetermined increment value (column 2, line 61 - column 3, line 5).

Regarding claim 13, Salonaho in view of Chen teach all the claimed limitations as recited in claim 12. Chen further teaches of wherein adjusting the common reference power based on reported frame errors at the mobile station further comprises signaling the base stations such that the common reference power is adjusted downward by a

predetermined decrement value if no error report is received from the mobile station within a defined period (column 9, lines 7 -15).

Regarding claim 14, Salonaho in view of Chen teach all the claimed limitations as recited in claim 13. Chen further teaches of wherein the predetermined decrement value is a relatively small fraction of the predetermined increment value (column 9, lines 7 -1 5).

Regarding claim 15, Salonaho in view of Chen teach all the claimed limitations as recited in claim 13. Chen further teaches of wherein the defined period defines an adjustment rate for the common reference power that is slower than a rate at which the power control commands are received from the mobile station at the base stations (column 11, lines 26 -36 and Table 1).

Regarding claim 16, Salonaho in view of Chen teach all the claimed limitations as recited in claim 13. Chen further teaches of wherein the adjustment rate is a frame rate of forward link data frames defined for forward link signaling between the base stations and the mobile station (column 11, lines 26 -36 and Table 1).

Regarding claim 29, Salonaho teaches all the claimed limitation as recited in claim 19. Salonaho does not specifically teach of wherein the at least one processor in the base station controller adjusts the common reference power based on reported errors at the mobile station by: receiving an error report from the mobile station; and signaling the base stations such that the common reference power is adjusted upward by a predetermined increment value. In a related art dealing with power control, Chen teaches wherein the at least one processor in the base station controller adjusts the

common reference power based on reported errors at the mobile station by: receiving an error report from the mobile station (starting column 2, line 6 1 and ending column 3, line 5); and signaling the base stations such that the common reference power is adjusted upward by a predetermined increment value (column 2, line 61 - column 3, line 5). It would have been obvious to one skilled in the art at the time of invention to have included into Salonaho's power control system, Chen's error reporting techniques, for the purpose of reducing delay while retaining a measure of quality of communication, as taught by Chen.

Regarding claim 30, Salonaho in view of Chen teach all the claimed limitations as recited in claim 29. Chen further teaches of wherein the at least one processor in the base station controller further adjusts the common reference power by signaling the base stations such that the common reference power is adjusted downward by a predetermined decrement value if no error report is received from the mobile station within a defined reporting period (column 9, lines 7 - I 5).

Regarding claim 31, Salonaho in view of Chen teach all the claimed limitations as recited in claim 30. Chen further teaches of wherein the defined reporting period defines an adjustment rate that is slower than a rate at which the power control commands are received from the mobile station at the base stations (column 11, lines 26 –36, Table 1).

Regarding claim 32, Salonaho in view of Chen teach all the claimed limitations as recited in claim 31. Chen further teaches wherein the adjustment rate is a frame rate of forward link data frames defined for forward link signaling between the base stations and the mobile station (column 11, lines 26 -36 and Table 1).

Regarding claim 34, Salonaho in view of Chen teach all the claimed limitations as recited in claim 32. Salonaho and Chen further teach wherein the at least one processor in the base station controller maintains a frame timer for timing adjustments to the common reference power (Salonaho: page 3, lines 18 -20 , and Chen: column 8, lines 46 -55).

5. Claims 17 and 33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Salonaho (WO 99/52310) and Chen (US 5,893,035) as applied to claim 16 above, and further in view of Chen (US 5,982,760).

Regarding claims 17 and 33, Salonaho in view of Chen teach all the claimed limitations as recited in claims 16 and 32. Salonaho in view of Chen do not specifically teach of wherein the power control commands from the mobile station are received at the base stations at sixteen times the frame rate (though it should be noted that power control commands are commonly known in the art to be sent in every frame, and further that a traffic channels are 20 ms in length with a command sent every 1.25 ms or 16 times as per 15-95 specification). In a related art dealing with power control systems, Chen teaches wherein the power control commands from the mobile station are received at the base stations at sixteen times the frame rate (starting column 12, line 67 and ending column 13, line 1). It would have been obvious to one skilled in the art at the time of invention to include into Salonaho and Chen's power control system, Chen's framing structure, for the purposes of combating fading and excessive power (and thus interference) by controlling power reliably, as taught by Chen.

6. Claims 18, 35, and 43 are rejected under 35 U.S.C. 103(a) as being unpatentable over Salonaho (WO 99/52310) as applied to claims 1, 19, 36, and 48 above, and further in view of Ziv et al. (US 5,884,187).

Regarding claims 18, 35, and 43, Salonaho teaches all the claimed limitations as shown above. Salonaho does not specifically teach wherein the power measurement report from the mobile station includes the number of error frames since the last power measurement report. In a related art dealing with power control, Ziv teaches wherein the power measurement report from the mobile station includes the number of error frames since the last power measurement report (column 14, lines 43 -59). It would have been obvious to one skilled in the art at the time of invention to have included into Salonaho's power control system, Ziv's error reporting means, for the purposes of controlling power with respect to the quality of signal received, as taught by Ziv.

7. Claims 38-40,52, and 53 are rejected under 35 U.S.C. 103(a) as being unpatentable over Salonaho (WO 99/52310) in view of Tripathi (US 6,587,442).

Consider claim 38. Salonaho teaches all the claimed limitations as recited in claim 37. Salonaho does not specifically teach decreasing the common reference power if no power measurement report is received within a predetermined time period. In a related art dealing with power control, Tripathi teaches decreasing the common reference power if no power measurement report is received within a predetermined time period (col 5, lines 49-54). It would have been obvious to one of ordinary skill in the art to modify Salonaho's power control system to incorporate Tripathi's variable,

decreasing, step power control for the purposes of mitigating long temporal fades, as taught by Tripathi.

Regarding claims 39,40,52,53; note that Tripathi's variable step arrangement incorporates decreasing the common reference by a defined downward amount (col 5, lines 40-47, col 7, lines 35-48). And also that Tripathi's variable step arrangement incorporates increasing the common reference power by a defined upward amount, wherein the defined upward amount is a fraction of the defined upward amount.

8. Claims 41 and 42 are rejected under 35 U.S.C. 103(a) as being unpatentable over Salonaho (W0 99/52310) as applied to claim 36 above, and further in view of Ziv et al. (US 5,884,187) and Tripathi (US 6,587,442).

Regarding claim 41, Salonaho teaches all the claimed limitations as recited in claim 36. Salonaho does not specifically teach wherein adjusting the common reference power comprises: maintaining an interval timer for timing an update interval; determining whether a power measurement report is received within the update interval; and incrementing the common reference power if a power measurement report was received during the interval, and decrementing the common reference power if a power measurement report was not received during the interval. In a related art dealing with power control, Ziv teaches of maintaining an interval timer for timing an update interval (column 14, lines 43 -59). It would have been obvious to one skilled in the art at the time of invention to have included into Salonaho's power control system, Ziv's error reporting means, for the purposes of controlling power with respect to the quality of signal received, as taught by Ziv. Salonaho in view Ziv do not specifically teach of determining

whether a power measurement report is received within the update interval; and incrementing the common reference power if a power measurement report was received during the interval, and decrementing the common reference power if a power measurement report was not received during the interval. In a related art dealing with power control, Tripathi teaches determining whether a power measurement report is received within the update interval (column 5, lines 49 -54); and incrementing the common reference power if a power measurement report was received during the interval, and decrementing the common reference power if a power measurement report was not received during the interval (column 5, lines 49 -54).

Response to Arguments

9. Applicant's arguments filed September 14, 2004 have been fully considered but they are not persuasive.

10. Note that applicant's remarks did not address the language of claims 36 and 37 that do not include the limitations regarding a varying correction step.

11. Applicant's arguments suggesting Salonaho does not teach a varying correction step are not convincing. Note that Salonaho goes to great detail to explain how the size of a correction step is calculated, i.e. the correction step varies in size. This is done in Salonaho's CSCU – the Correction Step Calculation unit. See for example Figures 3,5,6 and page 5, line 32 – page 6, line 4,page 6, line 15 – page 7, line 4, page 7, lines 32-36, and page 8, lines 16 –34.

Conclusion

12. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

13. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

14. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Philip J. Sobutka whose telephone number is 703-305-4825. The examiner can normally be reached on Monday-Friday 8:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nay Maung can be reached on 703-308-7745. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9314 for regular communications and 703-872-9314 for After Final communications.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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January 7, 2005

NAY MAUNG
SUPERVISORY PATENT EXAMINER